

REMARKS/ARGUMENTS

In the Office action dated April 1, 2010, the Examiner continues to interpret the present claims as product-by-process claims arguing that "[t]he charging of the battery is part of the process of making the battery." However, in its decision on appeal, the Board of Patent Appeals and Interferences ("the Board") clearly and expressly indicated that such an interpretation of the claims is erroneous. Board Decision dated March 1, 2010, page 7 (stating that "[a]s a final point, we note our agreement with Appellants' reasoned position concerning the Examiner's *erroneous* interpretation of the appealed claims as product-by-process claims")(emphasis added). Given the Board's clear reversal of the Examiner's position on this issue, the Examiner's continued interpretation of the claims as product-by-process is clearly improper.

The Examiner also rejected claims 10 and 12 under 35 U.S.C. §112, first paragraph, as allegedly not enabled. In response, Applicant has amended claims 10 and 12 to recite that the negative electrode comprises a *negative active material* consisting essentially of a carbonaceous negative active material and an aqueous binder. As these features are clearly enabled by the specification, Applicant respectfully requests withdrawal of this rejection.

Additionally, the Examiner rejected claims 10 and 12 under 35 U.S.C. §112, first paragraph, as allegedly not enabled, asserting that the amount of carbonaceous material and binder is *critical* to determining the amount of gas generated. Applicant respectfully traverses.

The enablement requirement is satisfied "[a]s long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim." MPEP §2164.01(b). Here, the specification includes detailed descriptions as to the methods used to make the present invention. *See, e.g.*, Examples 1 through 4. Claims 10 and 12 recite a negative active material *consisting essentially of* a carbonaceous material and an aqueous binder, the aqueous binder *consisting essentially of* a butadiene-based rubber and a cellulose-based compound. Each of Examples 1 through 4 include a negative active material bearing a reasonable correlation to the scope of claims 10 and 12, as each of these

Examples includes a negative active material including graphite, carboxymethyl cellulose and styrene-butadiene rubber. Also, Examples 1 through 4 provide at least two different negative active material compositions (i.e., Examples 1 through 3 include 96g graphite and 2g each of carboxymethyl cellulose and styrene-butadiene rubber, and Example 4 includes 96g graphite and 1g each of carboxymethyl cellulose and styrene-butadiene rubber). As only one method is required to satisfy the enablement requirement, and the present specification provides more than one method, Applicant submits that the enablement requirement is satisfied and respectfully requests withdrawal of this rejection.

The Examiner also appears to argue that the amount of carbonaceous material and aqueous binder is *critical* to determining the amount of gas generated. However, in rejecting claims for failure to include a critical feature, the examiner must consider the entire disclosure, and "features which are merely preferred are not to be considered critical." MPEP §2164.08(c). Indeed, enablement rejections on the ground that a claim fails to include a critical feature "should be made only when the language of the specification makes it clear that the limitation is critical for the invention to function as intended." MPEP §2164.08(c). Here, the language of the specification does *not* make it clear that the amount of carbonaceous material and/or the amount of the binder is critical. Rather, the specification notes that "the amount of gas generated can be controlled by either vacuum-drying an electrode, or removing gas during the battery fabrication." Specification, page 3, lines 9-11. Additionally, the specification notes that "[t]he vacuum-drying step can remove the atmospheric gas which may be present in the electrode," and therefore "can reduce the generation of gas." Specification, page 3, lines 16-18. As the specification nowhere describes the amount of the carbonaceous material or aqueous binder as critical, the language of the specification does not make it clear that such features are critical. As such, the amounts of carbonaceous material and aqueous binder are not critical elements, and Applicant respectfully requests withdrawal of this rejection.

Additionally, the Examiner rejected claims 10 and 12 under 35 U.S.C. §112, second paragraph, as allegedly indefinite. In making this rejection, the Examiner argues that "[i]t is

unclear whether charging is a required limitation of the final product." Office action, page 5. As noted in Applicant's previous responses and appeal brief, the feature discussed by the Examiner is a *property* of the battery. In particular, the claims recite that during charging (or initial charging), a total amount of gas is generated, the gas having a specified CO content and a specified H₂ content. The amounts of CO and H₂ can be easily measured after charging as evidenced by Tables 1 and 2 and their corresponding text in the specification. "Charging" and "initial charging" are terms well-known to those of skill in the relevant art. Moreover, "initial charging" is specifically defined in the specification, as admitted by the Examiner. The test for indefiniteness is "whether 'those skilled in the art would understand what is claimed when the claim is read in light of the specification.'" MPEP §2173.02. Here, as the amounts of gas can be easily measured after charging, and as those of ordinary skill in the art would readily understand what is meant by "during charging" or "during initial charging," the claims are definite.

Turning to the rejections over prior art, the Examiner rejected claims 10 and 12 under 35 U.S.C. §102(b) as allegedly anticipated by, or in the alternative under 35 U.S.C. §103(a) as allegedly obvious over Takami, et al. (U.S. Patent No. 5,753,387). In making this rejection, the Examiner argues that "[s]ince the negative electrode and battery are made with similar materials and in similar amounts, the amount of gas generated as claimed will be inherently the same." Office action, page 7. Applicant respectfully traverses.

To anticipate a claim by inherency, the missing descriptive matter must be "necessarily present in the thing described in the reference." *Id.* at 745 (quoting *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991)) ("*Monsanto*"). Here, the negative electrode and battery of Takami do not *necessarily* generate the recited amount of gas. The negative electrode of Takami is made by a different process than the electrodes of the present invention. In particular, the electrodes of the present invention are made by vacuum-drying the electrode after the electrode from dried and pressed on the collector. Examples 1, 2 and 4. In contrast, the electrodes of Takami are not vacuum-dried. Column 17,

lines 49-54. As discussed in the present specification, the vacuum-drying enables control of gas generation. Specification, page 3, lines 9-11.

That vacuum-drying significantly affects the gas generation is further established by a comparison of gas generation between Examples 1 and 2 of the present invention and Comparative Example 1 in the present specification. In particular, in Examples 1 and 2, the negative electrodes were vacuum-dried, and in Comparative Example 1, the negative electrode was not vacuum-dried. Each of the negative electrodes in Comparative Example 1 and Examples 1 and 2 had the same chemical composition, i.e., each electrode included 96g graphite, 2g carboxymethyl cellulose and 2g styrene-butadiene rubber. Despite the identical chemical composition, the electrodes of Examples 1 and 2 and Comparative Example 1 had very different gas generation profiles. Specifically, the electrodes of Examples 1 and 2 showed markedly reduced CO and H₂ generation. As the electrode of Takami is made by a process similar to that of Comparative Example 1, it appears that the electrode of Takami *does not* generate the recited amount of gas. Indeed, the evidence presented in Tables 1 and 2 of the present specification demonstrate that the electrode of Takami does not *necessarily* generate the recited amount of gas. Accordingly, Takami does not inherently anticipate the present claims.

The Examiner also relies on the interpretation of the claims as product-by-process claims in determining that Takami anticipates the claims. Office action, page 7 (stating that "the process of charging is part of the process of making the battery and so the claim is a product-by-process claim," that "determination of patentability is based on the product itself" and that "patentability of a product does not depend on its method of production"). However, as noted above, the Board clearly indicated that the Examiner's interpretation of the claims as product-by-process claims was erroneous. Therefore, the Examiner's continued reliance on such an interpretation is clearly improper.

The present claims are also not obvious over Takami, as Takami nowhere teaches or suggests an electrode or battery in which during charging (or initial charging) of the rechargeable lithium battery, a total amount of gas is generated, the gas having a CO content of 30 volume %

or less and a H₂ content of 0.2 volume % or less. As discussed above, these features are not inherent in the electrode of Takami. As Takami nowhere teaches or suggests these features, claims 10 and 12 are allowable over Takami.

Finally, the Examiner rejected claims 10 and 12 under 35 U.S.C. §103(a) as allegedly obvious over Dasgupta, et al. (U.S. Patent Publication No. 2003/0152835) in view of Takami. In making this rejection, the Examiner admits that Dasgupta fails to disclose an aqueous binder consisting essentially of a butadiene-based rubber and a cellulose-based compound, but relies on Takami to remedy this deficiency. However, neither Dasgupta nor Takami teach or suggest an electrode or battery in which during charging (or initial charging) of the rechargeable lithium battery, a total amount of gas is generated, the gas having a CO content of 30 volume % or less and a H₂ content of 0.2 volume % or less. As such features are not inherent in the Takami electrode, as discussed above, the present claims are allowable over Dasgupta and Takami.


In rejecting the claims as obvious over Dasgupta and Takami, the Examiner again relies on the interpretation of the claims as product-by-process claims. Office action, page 8-9 (stating that "the process of charging is part of the process of making the battery and so the claim is a product-by-process claim," that "determination of patentability is based on the product itself" and that "patentability of a product does not depend on its method of production"). However, as noted above, the Board clearly indicated that the Examiner's interpretation of the claims as product-by-process claims was erroneous. Therefore, the Examiner's continued reliance on such an interpretation is clearly improper.

Claims 10 and 12 remain pending in this application. By this amendment, Applicant has amended claims 10 and 12 for clarification. The amendments find full support in the original specification, claims and drawings, and no new matter is presented. In light of the above amendments and remarks, Applicant submits that both of pending claims 10 and 12 are in condition for allowance. Applicant therefore respectfully requests reconsideration and a timely

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indication of allowance. However, if there are any remaining issues that can be addressed by telephone, Applicant invites the Examiner to contact Applicant's counsel at the number indicated below.

Respectfully submitted,
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